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NEWS BULLETIN of

**The ENTOMOLOGICAL
SOCIETY of VICTORIA**



(the ENTOMOLOGICAL SOCIETY of VICTORIA (Inc)

MEMBERSHIP

Any person with an interest in entomology shall be eligible for Ordinary Membership. Members of the Society include professional, amateur and student entomologists, all of whom receive the Society's News Bulletin, the Victorian Entomologist.

OBJECTIVES

The aims of the Society are:

- (a) to stimulate the scientific study and discussion of all aspects of entomology,
- (b) to gather, disseminate and record knowledge of all identifiable Australian insect species,
- (c) to compile a comprehensive list of all Victorian insect species
- (d) to bring together in a congenial but scientific atmosphere all persons interested in entomology.

MEETINGS

The Society's meetings are held at Clunies Ross House, National Science Centre, 191 Royal Parade, Parkville, Victoria, at 8 pm on the third Friday of even months, with the possible exception of the December meeting which may be held earlier. Lectures by guest speakers or members are a feature of many meetings at which there is ample opportunity for informal discussion between members with similar interests. Forums are also conducted by members on their own particular interest so that others may participate in discussions.

SUBSCRIPTIONS

Ordinary Member.....	\$10.00
Country Member	\$ 8.00 (100 km + from GPO)
Student Member	\$ 5.00
Associate Member.....	\$ 2.00 (No Magazine)

No additional fee is payable for overseas posting by surface mail of the news bulletin. Associate Members, resident at the same address as, and being immediate relatives of an ordinary Member, do not automatically receive the Society's publications but in all other respects rank as ordinary Members.

The President, K. Walker, opened the meeting at 8.08 pm.

Apologies. K. Clark

Present. G. & Joy Burns, John Burns, P. Carwardine, D. Crosby, L., K. & J. Dunn, A. Farnworth, R. & J. Field, R. Gordon, D. & J. Holmes, M. Hunting, P. Kelly, T. New, J. Ross, B. Vardy, R. Vargi.

The minutes of the 1988 Annual General Meeting (Vic. Ent. 18: 57-58) were passed (Carwardine/R. Field).

K. Walker, as retiring President, thanked Officers, Council and Members for the support given to him and the Society during the past year. He then vacated the Chair and D. Crosby, as Public Officer, conducted elections for new office-bearers. No nominations additional to those forwarded from Council were received. The following were declared elected for the year 1989-1990.

President:	M. Hunting
Vice-Presidents:	R. Field, P. Kelly
Secretary:	T. New
Treasurer:	G. Burns
Editor:	John Burns
Excursions Secretary:	P. Carwardine
Council members:	Joy Burns, M. & P. Coupar, B. Vardy

M. Hunting then took the chair and invited K. Walker to give his Presidential Address on 'Insect Body Language'. Considerable discussion followed this wide-ranging talk emphasising evolution of grooming behaviour in bees. In proposing a vote of thanks, P. Kelly paid tribute to Ken's work as President and the quality of his address.

Correspondence. Detailed and received.

Treasurer's Report. G. Burns reported credit balances of \$2347.14 (general acct.), \$1651.24 (Memorial fund) and \$421.61 (Junior Encouragement Fund). There are at present 73 financial members. Received (Kelly/R. Field)

Editor's Report. John Burns commented on contents of the June issue and requested articles and notes. Received (Crosby/G. Burns)

Excursions. P. Carwardine outlined that possibilities for a winter excursion would be discussed by the incoming Council.

General Business

- i) G. Burns, as Hon. Treasurer, moved that the Statement of receipts and payments for the year ended 31st December 1988 together with the statement of assets and the statements of receipts and payments for the year ended 31st December 1988 for the J.C. Le Souef Memorial Fund and the Junior Encouragement Fund as tabled and circulated to all members be received and adopted. Seconded by P. Kelly: carried.
- ii) D. Crosby - showed a box of Hesperilla flavescens from various localities in Victoria, some of them new. All were reared from Gahnia filum. Several members contributed to a discussion over differences between flavescens and H. donnyssa and their possible relationship to food plants.
- iii) P. Kelly. Drew members' attention to photographs of members in the recent issue of Myrmecia. He had also had a letter from Ian Faithfall at Alice Springs.
- iv) K. Walker. Request for information on a locality in Victoria given as KOOPANGIE.
- v) John Burns. Tabled a reprint on beetles from the Darling Downs, and a recent issue of the newsletter 'Frass'.
- vi) K. Walker. Probed members' interest in a possible talk by officials of the Flora and Fauna Guarantee, to explain how this may work. Considerable interest was evident.
- vii) D. Crosby. Request, on behalf of E.D. Edwards (CSIRO) for information and records of Castniidae.
- viii) Programme for remainder of year outlined by secretary.

The meeting closed at 9.45 pm.

MINUTES OF THE COUNCIL MEETING, JULY 21 1989

The President, M. Hunting, opened the meeting at 8 pm.

Apologies: M. & P. Coupar

Present: G. & Joy Burns, John Burns, P. Carwardine, D. Crosby, R. Field, P. Kelly, T. New, B. Vardy, K. Walker.

Minutes of the May Council Meeting (Vic. Ent. 19:48) were adopted (Walker/Crosby).

Correspondence. Detailed by the Secretary and tabled.

Treasurer's Report: G. Burns reported credit balances of \$4435.37 (general account), \$1734.93 (Memorial Fund) and \$437.35 (Junior Encouragement Fund). There are at present 78 financial members. Adopted (Walker/Kelly).

The treasurer then commented on increasing expenses experienced by the Society, such as postage, and projector and room hire. He proposed that subscriptions should be raised from 1 January 1990 (seconded R. Field: passed unanimously after discussion). It was pointed out that no subscription increase had occurred for several years, and a guide to the amount of increase now needed should be to attempt to obviate the need for a further increase in the near future. After considerable discussion it was proposed (Vardy/Kelly) that the following rates become operative from 1 January 1990:

Ordinary member	\$14.00
Country member	\$10.00
Student member	\$7.00
Associate member	\$4.00
Institutional subscriptions	\$20.00 (20% agency discount)
Passed unanimously	

Editor's Report. John Burns commented that articles and notes were urgently needed for the Victorian Entomologist, and on some aspects of its production. Received (Crosby/G. Burns).

Excursions: P. Carwardine raised the possibility of a Saturday (?August 26) visit to the Entomology Dept of the Museum of Victoria. K. Walker to investigate feasibility and report to Editor and August general meeting. R. Field suggested the possibility of a visit to the Keith Turnbull Research Institute.

General Business

- i) Programme: The Secretary outlined a possible programme for the remainder of the year.
 - August: Talks by members: M. & P. Coupar, John Burns, R. Field.
 - October: Possible talk on the Flora and Fauna Guarantee by Philip Sutton.
 - December: Members' night.
 - February: Biology of predatory insects: T. New.
- ii) A request to reproduce the summary map from the 'Preliminary Distribution Maps of Butterflies in Victoria' was approved, subject to acknowledgement.

- iii) Production methods for 'On the Grapevine' were discussed at length. It was agreed that funds should not be made available for a regular programme of interstate phone calls to gain information for this. All members are encouraged to send items of interest to the Editor or to communicate them to him at meetings.
- iv) The Society's Conservation Statement was approved for publication in the Victorian Entomologist (Kelly/Crosby).
- v) Considerable discussion was held on the principle/practicality of listing of insect species under the Flora and Fauna Guarantee Members should consider this and bring quests/uncertainties to the attention of Council and to the October meeting.
- vi) No progress has been made with allocation of the Junior Encouragement Fund.

The meeting closed at 9.40 pm.



ON THE GRAPEVINE

TIM NEW goes to Europe for about one month from mid-August. He will attend the IUCN/ Species Commission meeting in Rome and present a report on recent Lepidoptera conservation work. He will then work at the British Museum on Lacewings before the Royal Entomological Society's Symposium on insect Conservation where he and Penny Greenslade will give a paper on Insect Conservation in Australia.

Congratulations to **KEN WALKER** for his fine stint as President of our Society. Around the time of the council meeting 19 May. Ken also managed to achieve T.V. status. He was approached by channel 9 to explain an unusual arachnid effect at Wallan. (25 km north of Melbourne)

Ken explained in his admiral fashion that Orb Weaving spiders create the rarely observed "GOSSAMER effect". Huge numbers of eggs must be present. After moulting spiders walk to the end of twigs. Here they get up on their haunches spin "foot baskets" then arch abdomens into the air. The early morning thermal then carries them away. Minus blustery conditions large numbers may travel as a clump. Finally a frosty sunny morning reveals the Gossamer effect via morning dew drops

ENTOMOLOGICAL SOCIETY OF VICTORIA
STATEMENT ON INSECT CONSERVATION IN VICTORIA

The Entomological Society of Victoria is firmly committed to the principles of Conservation of Insects in the State. It endorses the commitment implied by the recently-enacted Flora and Fauna Guarantee that no animal or plant species should be permitted to become extinct in Victoria. The Society recognises the need to conserve insects, and to do this progressively from a basis of sound understanding of the distribution and biology of insects and of their needs. Much of the rationale for insect conservation is outlined in the Charter on Invertebrates adopted by the Council of Europe, Strasbourg (Appendix 1), and the broad perspective there outlined merits adoption also in Australia. The main points used there related the major global roles of invertebrates as follows:

- a) Invertebrates are the most important component of wild fauna, both in number of species and biomass.
- b) Invertebrates are an important source of food for animals and may also constitute a source of food for mankind.
- c) Invertebrates are vital to the fertility and to the fertilization and production of the vast majority of cultivated plants.
- d) Invertebrates are useful in protecting farming, forestry, animal husbandry, human health and water purity.
- e) Invertebrates are valuable aids for medicine, industry and crafts.
- f) Many invertebrates are of great aesthetic value.
- g) Some invertebrates may harm human activities but their populations may be controlled naturally by other invertebrates.
- h) Mankind can benefit greatly from enhanced knowledge of invertebrates.
- i) Terrestrial, aquatic and aerial invertebrates should be protected from possible causes of damage, impairment or destruction.

Insects are the most diverse group of invertebrates.

Destruction or change of habitat is widely recognised as the major process leading to insect extinctions. Many insect species have very precise or specialised resource needs

(such as specific plant or animal foods, habitats, climatic regimes), and can not tolerate any major change. Practices such as forest and woodland clearance, conversion to exotic softwoods, increased soil exposure or erosion, agricultural conversion, urbanisation, impoundment or drainage of water bodies, effluent emissions and pesticide applications all have the potential to exterminate insect species. Habitat reservation and protection, probably involving intricate management to preserve seral succession and to guard against invasion by exotic species, is the prime need for wellbeing of many insect species. The changes to natural habitat already wrought during 200 years since european settlement now render the reservation of remnant vegetation types, wetlands and water bodies an urgent need for invertebrate conservation.

The Society recognises that, in some situations, the legislative listing of particular taxa as 'protected' may be deemed necessary. We urge that this be done, if at all, only on sound scientific grounds or as an interim measure to enable clarifying scientific studies to be made. In general, collecting does little harm to insects unless pursued for mass commercial gain (a practice which we actively oppose) and the extreme step of totally prohibiting collecting of any insect species should not be promulgated except in very extreme situations. Collectors should be urged to adopt a code similar to that proposed by the Joint Committee for the Conservation of British Insects (Appendix 2), and 'voluntary protection' codes for rare species tend to be heeded: some rarer butterflies in Victoria are the subject of such a code from the society.

Protective legislation is difficult to enforce and can on occasion draw attention to the putative vulnerability of nominated taxa and increase their commercial desirability. Protective legislation should, in practice and principle, be accompanied by research programmes designed to clarify the status and management needs of the taxa concerned rather than be seen as an end in itself: it is not.

The Society will progressively draw up lists of insect taxa of conservation interest in Victoria. It will provide information and advice wherever possible to Government Departments and Agencies involved in assuring the wellbeing of the State's fauna, and will be prepared to help in other ways to the limits of its available expertise.

M.J.MANSKI - THE LATER YEARS AND OBITUARY.

By Kelvyn Dunn
1/7 James Street, Dandenong 3175

It is with sadness this time that an account of "old Joe" should appear. Much of Joe Manski's life has already been detailed in a biography which appeared in the February 1989 issue of the Victorian Entomologist. To avoid repetition, I direct readers to this recent account. The biography was originally intended to be longer, and Joe was a little disappointed that there was insufficient time to complete a fuller version, but he had not had enough time to examine his more recent diaries dealing with the post World War II era. In this final report I will give a more personal account of "old Joe", based on his correspondence and my time with him, thus concluding the biography with this obituary.

During the 1930-40 period, Joe published a few popular style notes in the North Queensland Naturalist, some proposing radical new considerations regarding possible interbreeding relationships among some similar species. In 1939 these theories were not well received by the scientific community. Joe believed for example that some interbreeding occurred among the Euploea species of the Cairns district and intended to show this, but his ambition was not fulfilled due to his return to south Queensland. He did not however abandon his concept of two polymorphic Euploea species. Even as recent as 1982, Joe asserted in correspondence, "Richard Carver FRES read the article in Papua who wrote and told me he saw E.tulliulus & E.hymens niveata in copulation & said I was correct". Joe extended this theory to incorporate possible interbreeding among some of the named Jalmenus species. Objectively however, the true relationships among the Jalmenus complex will remain shrouded until their distributions are clarified and all the life histories have been thoroughly documented and compared.

Joe was fascinated with the seasonal appearances of species in the various insect groups including Diptera, Hymenoptera, Coleoptera and of course the Lepidoptera. He used his diaries to record species present on a regular basis, and thus was able to predict with fair accuracy the seasonal appearances of the local insect fauna. In particular he was most impressed by the precise timing of emergences of cicadas in Queensland. While in the far north he determined that insect collecting was most profitable in the open forest from November to January, the rainforests from February to April, and the low lying swampy country from May to July. Joe mentioned that "August and September are months when butterfly collecting can be left alone".

Joe's active mind pondered many questions about butterfly biology which he was unable to answer. After many years of rearing Catopsilia pomona he remained perplexed as to the cause of the patterns on subsequent generations of adults. At that time there was speculation as to whether the wing patterns were genetically controlled or subject to environmental influences. Researchers at James Cook University have only recently shown the latter to be the cause. He was also confused by the choice of larval hosts by Papilio demoleus in different parts of Australia; mentioning how at Maryborough the species feeds entirely on Psoralea, whereas at Mossman he found the species breeding on Citrus. Joe was continually enthused by any new behavioural curiosity he encountered, or simply the factors which might control the distributions of particular species despite an adequate supply of host plant in a particular region.

After his return to Maryborough in 1945, Joe spent much time with Cyril Tipping, a local friend who had an interest in nature. Joe described this period as his major collecting time, as in the earlier periods Joe preserved few insects being content on rearing species and determining host plants and parasites of the insects. Joe was an amateur entomologist of the pioneering kind. There were few texts on insects fifty years ago, and being required to live away from the major centre of Brisbane, Joe had little access to museum magazines and the respected science journals of that period. Instead he corresponded with the authorities hoping to glean some hints to apply in the field.

Although Joe believed he was first to discover the life history of the Hercules moth, which unknown to him had been reared in 1904 by Frederick Dodd of Kuranda, he did describe some original life histories. During 1935 after Dr. T. Guthrie captured a small skipper at the Cairns wharf, Joe was quick in pursuit and discovered the previously unrecorded early stages of Hesperilla sexguttata sela Waterhouse. This life history along with the life histories of three other hesperiids was published by Joe in 1940. In the Queensland Naturalist, Joe described a Neuropteran caught near Maryborough which was new to science. According to Geoff Monteith of the Queensland Museum, Joe named the Lacewing, Stilbopteryx brocki Manski, in 1948 in honour of its collector, Stan Brock.

Joe was a devout catholic. He believed that Jesus Christ's death was a sacrifice for our sins, and unlike many religious people, Joe followed the scientific creation theory believing in the Biblical creation record and the co-existence of prehistoric reptiles and humans. A theory which has gained considerable attention by scientists in the last decade. He showed concern for the conservation of our forests, convinced that our species was abusing the creation. "All over Australia the process of destroying forests is proceeding rapidly." Many of us undoubtedly would agree with Joe. Joe also read widely after his retirement,

particularly on world religions, evolution, and conservation issues. He frequently recommended books which he considered of value. On one occasion he presented such a book on creation science to both Ray Manskie and myself.

Joe was a friendly person, ever ready to assist other visiting naturalist and collectors, but like many collectors held some strong views on certain issues in entomology. One such issue was his commitment to observing behaviour rather than taking specimens. Joe recalled, "...I very seldom used a net but watched the butterflies to see where they laid their eggs and then reared them to maturity. By rearing the larvae and getting the perfect specimens, and retain a few for the collection, I usually liberated more than would have lived to adults due to parasites..." This attitude caused a misunderstanding to occur between J.C. "Zoo" LeSouef (whose main interest was in the distribution of species) and Joe who insisted "Zoo" leave his net at home. Later Joe could relate to "Zoo's" concern during his brief visit to Queensland, and subsequently wrote, "I appreciate the fact that casual collectors must use the net as time does not permit (one) to observe where the butterflies lay their eggs".

Like "Zoo" LeSouef, Joe's enthusiasm was contagious and on many occasions encouraged new collectors. Geoff Monteith commented in the April 1989 issue of the Victorian Entomologist, "as a beginner I can remember being enormously impressed with his knowledge of food plants". It does not seem long ago when I, as a teen-ager, visited Ray and Nola shortly after they moved to Queensland. I was fortunate to attend a field outing cum picnic with Joe to the River Heads in December 1981. Joe was able to point out many host plants for species I desired for my collection. I recall returning laden with a variety of larvae among other things. Another memorable outing was to Hervey Bay the following day accompanied also by Gordon and Joy Burns of Mornington, who were on their way north. I can recall my excitement as Joe uncovered what he called the "puppy dog pupa" of Phaedyra sherpherdii on Celtis at Urangan; a species at that time entirely new to me.

Joe suffered a slight heart attack during August 1982, and had a week in hospital, and subsequently caught a virus. In 1982 he met up once again with Mary LeSouef who was visiting Nola after "Zoo's" death. Although the doctor had advised him to "go steady" for a while, he still had an occasional outing with Ray. In May 1983 Joe suffered some falls and was hospitalised. Joe did however, managed to attend a final collecting outing in early October 1984 with David and Joyce Holmes of Dromana. Once again it was back to the River Heads. Joe recalled that collecting was poor as the dust from traffic covered the leaves of foodplants, but all the same it was most enjoyable. Reminiscing Joe stated "I

often sigh for the good old days, but I realize I am too old now for gallivanting about the countryside in search of specimens and am content to remain in my little cottage at Wahroonga"

Only last November, I was sitting in Joe's cottage while he shared his experiences collecting insects in the early days. While Joe discussed his discoveries he showed me photographs of the house in which he was born in Maryborough, and keenly pointed out the very tree on which he first found juvenile stages of the common crow butterfly at an early age of four or five. Displayed in his bedroom was a photo depicting himself, Ray Manskie, Gordon Burns and myself taken in 1981 on our buprestid trip to Burrum Heads. Joe remarked on how extraordinary it was that people from such a range of age groups could have an enjoyable time together.

In the last few years Joe had suffered a problem with his sense of balance which confined him ever more to his cottage. Joe was recently admitted to the base hospital and by chance Ray Manskie was also in hospital for a week and was surprised to see Joe in the same ward. Ray commented "I saw Joe walking around and had a chat, and gave Joe a copy of the June issue of the Victorian Entomologist to read during his period in hospital". Ray visited Joe not long before his death, and reported that Joe had been placed on the drip, and had not eaten for some three weeks. His health gradually deteriorated. Joe was transferred to St Stephens Hospital, in Maryborough, where on the 31st of July 1989 at the age of 92 years, he died. Ray and Nola were unaware of the circumstances, until Nola discovered the notice in the local Chronicle.

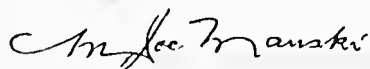
In Maryborough, the 3rd of August was a typical sunny winter day, and the funeral was held in the local Catholic Church at 2.00 pm. A one hour Requiem Mass was held and the church was full. Ray and Nola said that it was a most appropriate service. The priest spoke highly of Joe's commitment as a believer, his post office career, and his service overseas during World War I. He also enlightened those present of Joe's enthusiasm for the study of insect biology, as well as some of Joe's achievements in amateur entomology. Joe left no direct descendants and was buried in the local cemetery. His wife had pre-deceased him in 1981.

The final chapter of Joe Manski's life has closed. For those of us who remember Joe, I will quote from a recent letter,

"My final advice to you is to keep on going as you are now & appreciate the beauty of creation.

Cheerio for the present & good collecting .

From M Joe Manski"



A handwritten signature in cursive script, reading "M. Joe Manski". The signature is written in dark ink and is positioned above a horizontal line.

A NOTE ON THE EFFECTS OF TEMPERATURE ON THE EARLY STAGES OF
DELIAS HARPALYCE (DON.) - POSSIBLE CONSTRAINTS ON DISTRIBUTION

F. Douglas¹ and M.F. Braby²

The imperial white butterfly, Delias harpalyce (Don.) (Lepidoptera: Pieridae) is a common insect distributed widely in south-eastern Australia. It is predominantly a mountain species occurring along the Great Dividing Range, from the coast to about one thousand metres (Burns and Rotherham, 1980), and does not penetrate far inland. At the northern end of its range the species is confined to the higher altitudes, and in the drier inland areas of the Great Divide it is largely restricted to cooler, moister microhabitats which prevail along creeks and river systems.

Observations on the behaviour of adult butterflies during hot weather (Braby, 1987) suggest the species may not tolerate relatively high temperatures and this may be an important factor limiting the species occurrence from the hotter inland areas of south-eastern Australia. Here we present two lines of evidence, based on field observations of the early stages, which further suggest that D. harpalyce is sensitive to conditions.

At Kangaroo Ground in early December 1986 a small fire was

¹Henley Road, Environmental Living Zone, Kangaroo Ground, Vic. 3097. Present address: 20 Rigg Street, Rainbow, Vic. 3424.

²21 Cromwell Street, Eltham, Vic. 3095. Present address: Department of Zoology, James Cook University, Townsville, Qld. 4811.

lit on private bushland which burnt near a clump of A. miquelii located approximately 2-3m above the ground. Some fifteen minutes after the burn it was realised that the mistletoe supported a large colony of D. harpalyce larvae close to pupation. On examination of the colony it was found that most larvae had moved off the web and mistletoe branch and were moving rapidly up the main trunk of the tree, apparently in a desperate effort to escape from the moderate amount of heat generated by the fire. However, some larvae did not move off the clump and these were falling, by silken threads attached to the pupal web, hoplessly towards the ground layer of hot ash. A number of these larvae were collected before being 'sizzled' by the fire and to our astonishment, many of these later successfully pupated in captivity. But on emergence it was observed that in each adult some or all of the tarsae were missing. In fact, those individuals with no tarsae, especially on the front legs, were unable to gain a footing to expand and dry their wings and consequently these adults were unable to fly. The heat from the fire had apparently affected the development of the thoracic legs, but all other structures in those adults which did expand their wings were otherwise normal. Unfortunately, temperatures were not recorded at the mistletoe clump during the burn. The reaction of larvae to what was probably only a moderate rise in temperature perhaps seems unusual and would appear to indicate an extreme disliking to sudden rises in temperature or relatively hot conditions.

During January 1985 two pupal colonies, totalling 63 pupae, on M. eucalyptoides at Research and A. miquelii at Kangaroo

Ground were kept under observation. Twenty-five pupae were collected in early January and kept inside the house at room temperature (c. 25°C). Heat wave conditions then followed with temperatures reaching 41°C in mid January, during which time the remaining 38 pupae on the mistletoe clump were observed to change from orange to a dark reddish colour (and then ultimately brown). These pupae subsequently died as no adults emerged. Their unusual colour and their failure to hatch suggest that they exceeded their maximum temperature threshold, as all pupae kept at room temperature produced adults two weeks later.

While more hard data is needed on the developmental thresholds of *D. harpalyce* and how this relates to the species geographic distribution, it is tempting to speculate on how the species might cope during unusually hot seasons from the above observations. For instance, it is possible that in some seasons, periods of extreme heat may drastically reduce numbers or even temporarily eliminate local populations. Such reductions in numbers may account for the apparent scarcity of the butterfly during particular years in central Victoria (see Waterhouse, 1932; Barret and Burns, 1955; Burns and Rotherham, 1980). This may be particularly true in lowland areas as populations in the cooler montane areas may not be so vulnerable to unusually hot summers. In such circumstances, repopulation in lowland areas, such as around Melbourne, would have to occur either by recolonisation or by gradual build up from a few survivors during adverse seasons. If repopulation occurs by recolonisation, for example, from nearby mountain stock, females would have to be capable of long distance dispersal. Evidence for this is thin

but a female was recently observed on 10 April 1987 at Rainbow in the mallee of north-western Victoria, possibly more than one hundred kilometers outside its breeding range, indicating that the species is capable of moving long distances.

Clearly, further detailed information is needed on the species physiological temperature thresholds, its population dynamics and changes in distribution and abundance in relation to climatic variables, in order to assess these intriguing possibilities.

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Rod Eastwood P.O. Box 325 Maroochydore Qld. 4558 and
R.C. Manskie 139 Queen St., Maryborough Qld. 4650.

On the weekend of 18th. and 19th. February 1989 the authors collected butterflies at four localities around Maryborough Qld., namely: (A) St. Helens rifle range,
 (B) Mary river heads,
 (C) Saltwater creek,
 (D) Teddington weir.

After examining the specimens collected and recording our observations it was noted that a total of 76 species were collected/observed on the weekend. A list of species follows: (species marked thus "O" were observed only)
 Nomenclature follows that of Common and Waterhouse (1981).

HESPERIIDAE

Hasora khoda haslia	1♂	B
Chaetocneme denitza	1♀	D
Trapezites eliena	1♂ 1♀	D
" maheta	2♂	D
" petalia	1♂	D
Toxidia peron	3♂	B
" doubledayi	1♂	B
" rietmanni rietmanni	6♂ 4♀	B
Taractrocera ina	4♂	A
Ocybadistes walkeri sothis	3♂ 1♀	B
Suniana sunias nola	1♂ 2♀	A
Arrhenes marnas affinis	2♂	A
Telicota colon argeus	4♂	B
" anisodesma	8♂ 5♀	B
Parnara amalia	1♂ 1♀	C
Pelopidas agna dingo	1♀	A

PAPILIONIDAE

Protographium leosthenes leosthenes	2♂	B
O Graphium sarpedon choredon		B
" eurypylus lycaon	2♂	B
O Papilio aegaeus aegaeus		B
O " fuscus capaneus		B
Cressida cressida cressida	1♂ 2♀	A

PIERIDAE

O Catopsilia pomona pomona		B
O " gorgophone gorgophone		B
Eurema brigitta australis	1♂ 1♀	A
" hecabe phoebus	3♂	B, C
O " smilax		B
Elodina angulipennis	2♂ 3♀	B
Delias argenthona argenthona	2♂	C
Cepora perimale scyllara	3♂	B
Appias paulina ega	2♀	B

NYMPHALIDAE

O Danaus plexippus plexippus		A, B, D
" chrysippus petilia	1♂	A
" affinis affinis	1♂	C
O " hamatus hamatus		C
Euploea core corinna	1♂ 1♀	B
" tulliolus tulliolus	5♂ 4♀	B
Melanitis leda bankia	2♂	A
Hypocysta metirius	2♂ 1♀	A
" adiante	3♂	A

NYMPHALIDAE .. (Cont.)..

0	<i>Xois arctoa arctoa</i>		A
	<i>Phaedyra shepherdii shepherdii</i>	1 pupa	B
0	<i>Mynes geoffroyi geoffroyi</i>		B
	<i>Hypolimnas bolina nerina</i>	2♂ 1♀	A,B
	" <i>alimena lamina</i>	1♀	B
	<i>Junonia hedonia zelina</i>	6♂	A
0	" <i>villida calyde</i>		A
	<i>Cupha prosopoe prosopoe</i>	2♂ 1♀	B
0	<i>Acraea andromancha andromancha</i>		A,B

LYCAENIDAE

	<i>Hypochrysops delicia delicia</i>	14 pupa/larvae	A
	" <i>epicurus</i>	1 larva 3♂ 1♀	C
	" <i>digglesii</i>	6 larvae 1♀	A,C
0	<i>Ogyris zosine zosine</i>		C
0	" <i>sp. (oroetes ?)</i>		A
	" <i>amaryllis hewitsoni</i>	6♂ 1♀	C
	<i>Jalmenus evagoras evagoras</i>	2♂ 2♀	A
	" <i>daemeli</i>	4 pupa 3♂ 2♀	A
	<i>Deudorix epijarbas diovis</i>	6♂ 2♀	B
0	<i>Candalides margarita</i>		C
	" <i>absimilis</i>	1 larva (em. 3 Mar.)	B
	" <i>erinus erinus</i>	2♂ 1♀	A
	" <i>acastus</i>	1♂	A
	" <i>hyacinthinus hyacinthinus</i>	3♂	A
	" <i>xanthospilos</i>	2♂	D
	" <i>heathi heathi</i>	1♀	D
	<i>Nacaduba berenice berenice</i>	2♂ 1♀	B
	" <i>kurava parma</i>	2♂ 2♀	B,C
	<i>Prosotas dubiosa dubiosa</i>	1♂	B
	" <i>felderi</i>	2♂ 4♀	B,C
	<i>Catopyrops florinda halys</i>	2♂	B
	<i>Theclines thes scintillata</i>	1♀	A
	<i>Danis hymetus taygetus</i>	6♂ 2♀	B
	<i>Lampides boeticus</i>	2♂ 3♀	A
	<i>Zizina labradus labradus</i>	1♂ 1♀	A,D
	<i>Famegana alsulus alsulus</i>	2♀	D
	<i>Zizula hylax attenuata</i>	1♂	A

Although by no means a comprehensive list of butterflies from the Maryborough district, it is nonetheless interesting that such a large number of species should be flying at the same time. Many of them were locally common and it would appear that the abundant butterfly population was due to favourable weather conditions, the weekend of 18th. & 19th. Feb. being very warm (30°C) and sunny and was preceded by two weeks of humid wet weather.

REFERENCE: Common, I.F.B. and Waterhouse, D.F., 1981 "Butterflies of Australia" Angus and Robertson, Sydney. 682pp.

A DISCUSSION OF THE MECHANICS OF LYCAENID SEASONAL DISPERSAL
ACRODIPSAS (ANT BLUE) species

J Burns 274 Church Rd Templestowe.

INTRODUCTION

The following discussion is based upon (a) Several observations made in the field by different sources (b) Deductive thinking and educated guesswork based upon those observations and documented fact.

Firstly itemised are the known facts, then the salient observations. I will then define the constraints governing ACRODIPSAS dispersal and finally crystallise and describe my own model for the DISPERSAL PATTERN of ACRODIPSAS (ant blue) species.

FIELD OBSERVATIONS (LYCAENID SPECIES GENERALLY)

- (1) Several if not all Acrodipsas species depend upon either Crematogaster or Iridomyrmex ant species for pre-flight survival.
- (2) Crematogaster and Iridomyrmex species ants are widely distributed throughout temperate Australia wherever dry Eucalypt Forest remains.
- (3) Both sexes of Acrodipsas butterflies hill top, but males are most often seen on these hills.
- (4) Some colonies of host ants (with butterfly present) have been found at sites which offer no nearby hills for practical hill-topping.
- (5) Butterfly colonies are invariably single in number at each site ie. two or more butterfly occupied ant colonies are never found alongside each other. In fact single colonies may occur many miles apart.
- (6) Only a small percentage of suitable host ant colonies are at any one time occupied by Acrodipsas larvae/pupae.
- (7) At varying intervals Iridomyrmex and Crematogaster ant colonies are prone to site extinction through events such as,
 - a. Bushfire
 - b. Ant-eater (Echidna) attack
 - c. Disease
 - d. Nest desertion by Queens and Drones.
 - e. Natural disintegration of nest stump.
 - f. currently MANS INTERVENTION. etc etc
- (8) Occasionally ant blue species have been observed on flat terrain away from breeding sites.
- (9) Ant blue species generally fly fast and high at least on the top of prevailing vegetation profiles and their small size disallows ready identification.
- (10) Oviposition in Lycaenid butterflies seems to be initiated by a species specific chemical stimuli from the appropriate ant species.

CONSTRAINTS GOVERNING ACRODIPSAS DISPERSAL.

Given no significant change in vegetation distribution Acrodipsas species numbers appear to be roughly CONSTANT from year to year. (No boom and Bust years as with Catopsilia (Migrant) and Anaphaeis (Caper white) etc. Since there is an ongoing change yearly to the distribution of host ant sites (through events a. to e. above) a minimum percentage of female ant blue butterflies must be re-locating new breeding sites for their offspring.

MODEL FOR SEASONAL DISPERSAL.

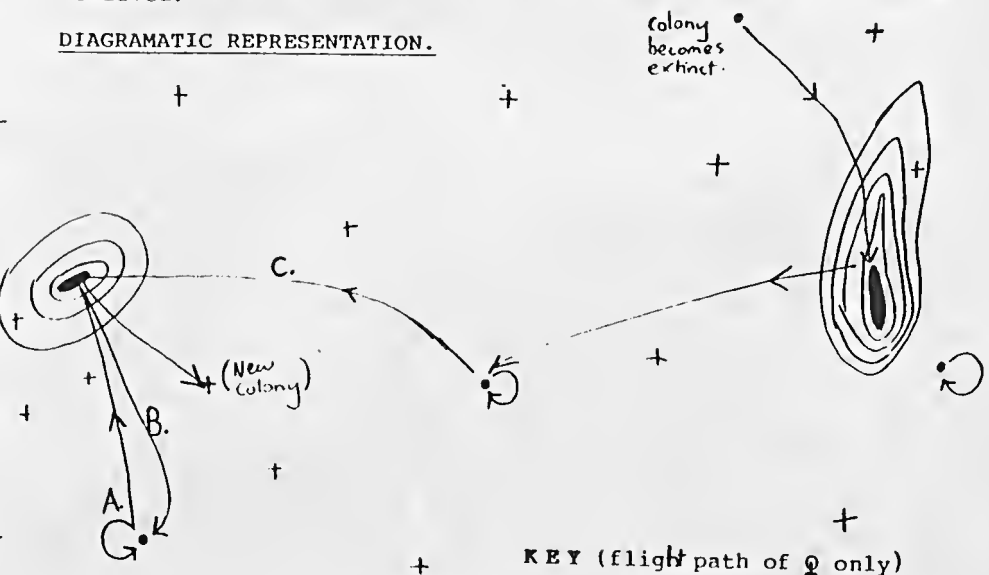
Female ant blue butterflies emerge from the host ant colony on the average just ahead of the males (Observation: Kelyvn Dunn of Cuprea species near Canberra) The newly emerged females deliberate at the nest site for several hours by walking over the colonised stump or tree, and by flying about the immediate air space. Several females if not all may be quickly inseminated as males also emerge and become fully functional. Males will abandon the birth site much more quickly than females. Upon moving away males will roam nearby vegetation profiles (generally at the zenith). If a nearby hill outline shows itself these males make their way to the top of this outline. Here these males will engage in classic hill topping manoeuvres.

cont:

Females frustrated by lack of successful courtship at the birthsite finally move off in the same manner as males. They may show a less aggressive style however. As these females search for a nearby hill outline they also maintain readiness for copulation even when this may not occur until they also reach the zenith of a nearby hill. Upon mating females quickly retire to lower altitudes. Very few pregnant ladies actually lay their eggs on the hill where conception occurred.

These are the females that contribute to a re-alignment of the pattern of distribution of their future offspring. The first colony of suitable host ants encountered on their postnuptial flight will be the site where egg laying occurs. Eggs may be laid at the tops or otherwise on the vegetation visited by host ants. (Once the necessary chemical stimuli has been evoked.) Eggs may also be laid at the actual site of the host ant colony although this would require some searching out by the ovipositing mother. Both sexes would then await imminent death since the prime objective in their life—that of reproduction—was achieved.

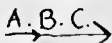
DIAGRAMATIC REPRESENTATION.



KEY (flight path of ♀ only)



Hill contours.



Three recognised nuptial flight paths.



Local butterfly colonies.



Local potential ant hosts



Mating at birth site then oviposition.

NOTE . Limited gene exchange can occur

Distribution of butterflies is limited only by availability of suitable ants.

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PAST PRESIDENT	-Joy Burns
COUNCILLORS	-David Crosby, Julie Field, Peter Kelly, Pat Coupar, Mike Coupar.

DIARY OF COMING EVENTS

FRIDAY 18th Aug	General Meeting(Short talks gy members)
FRIDAY 15th Sep	-Council meeting
EXCURSION	-To be arranged at council meeting(15th)



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